

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A filtering method for ~~use in~~ decoding a digital signal from a frequency domain to a time domain, comprising:

a first step of multiplying an input data stream of the digital signal and a transformation matrix that is decomposed into a sparse matrix from an inverse MDCT transformation matrix ~~for making the~~ to make an inverse MDCT transformation ~~of said of the~~ input data stream composed of a plurality of data blocks, and ~~has a~~ having a smaller size ~~than said than the~~ inverse MDCT transformation matrix, to ~~acquire~~ generate an output data stream composed of a plurality of data blocks;

a second step of storing predetermined data contained in each data block ~~of said of the~~ output data stream; and

a third step of generating ~~the digital a digital~~ signal in the time domain on the basis of each data block ~~acquired at~~ generated in the first step and the predetermined data stored ~~at the in the~~ second step in processing the data block ~~at the former stage in the first step,~~

wherein the third step includes determining side information including information regarding decoding of the data block, and switching a processing method for generating the digital signal in the time domain on the basis of the side information.

2. (Currently Amended) The filtering method according to claim 1, wherein ~~said first step further comprises the first step includes~~ a fourth step of making ~~the DCT a DCT~~ (Discrete Cosine Transform)-IV transformation process for each data block of the input data stream; and

~~said second step further comprises the second step includes~~ a fifth step of storing a part of ~~the processed a process~~ result of each data block ~~at said at the~~ fourth step that is used in processing the data block at the ~~latter stage, fourth step,~~ and

~~said third the third~~ step further comprises:

a sixth step of folding back and expanding a part of the ~~proeessed-process~~ result of each data ~~block at~~ block in the fourth step other than the part of the process result stored ~~at the in the~~ fifth step and multiplying the expanded data by a predetermined window to ~~acquire-generate~~ a first ~~processed-process~~ result, and folding back and expanding a part of the data block at the ~~former stage-sixth step~~ that is stored ~~at the in the~~ fifth step and multiplying the expanded data by a predetermined window to acquire a second ~~proeessed~~ process result, and

a seventh step of adding the first and second ~~proeessed-process~~ results ~~aequired at~~ acquired in the sixth step.

3. (Canceled)

4. (Currently Amended) The filtering method according to claim 2, ~~wherein at~~ wherein the third step of switching the processing method includes switching, in the sixth step, the predetermined window by which each data block is ~~multiplied is switched~~ multiplied, on the basis of the side information including the information regarding the decoding of the data block.

5. (Currently Amended) The filtering method according to claim 1, ~~wherein at~~ wherein in the first step, the output data stream is ~~aequired by making the matrixing generated~~ by matrix transformation on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{IV} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x , and C_N^{IV} is a DCT-IV transformation matrix represented by the following expression,

$$[C_N^{IV}]_{m,n} = \cos \left[\frac{\left(m + \frac{1}{2}\right) \left(n + \frac{1}{2}\right) \pi}{N} \right], 0 \leq m, n \leq N - 1$$

where N is the number of data contained in x .

6-8. (Canceled)

9. (Currently Amended) A filtering apparatus for decoding a digital signal ~~from the~~ from a frequency domain to the time to a time domain, comprising:

transformation means for multiplying an input data stream of the digital signal and a transformation matrix that is decomposed into a sparse matrix from an inverse MDCT (Modified Discrete Cosine Transform) transformation matrix ~~for making the~~ to make an inverse MDCT ~~(Modified Discrete Cosine Transform)~~ of said transformation of the input data stream composed of a plurality of data blocks, and ~~has a~~ having a smaller size ~~than said than~~ the inverse MDCT transformation matrix, to ~~acquire~~ generate an output data stream composed of a plurality of data blocks;

memory means for storing predetermined data contained in each data block ~~of said of the~~ output data stream; and

digital signal output means for generating and outputting the digital signal ~~in the time in a time~~ domain on the basis of each data block contained ~~in said in the~~ output data stream ~~and the data of~~ and data of the predetermined data in each data block ~~at the former stage stored in said memory means by memory means,~~

wherein said digital signal output means determines side information including information regarding decoding of the data block, and switches a processing method for generating the digital signal in the time domain on the basis of the side information.

10. (Currently Amended) The filtering apparatus according to claim 9, wherein said transformation means makes the DCT (Discrete Cosine Transform)-IV transformation process for each data block of the input data stream;

said memory means stores a part of ~~the processed~~ a process result of each data block ~~through said of the~~ DCT-IV transformation process that is used in processing the data block ~~at the latter stage;~~ block; and

said digital signal output means further comprises:

multiplication means for folding back and expanding a part of the ~~processed~~ process result of each data block ~~processed through said of the~~ DCT-IV transformation process other than the part of the process result stored in said memory means and multiplying the expanded data by a predetermined window to ~~output a first processed~~ generate a first process result, and folding back and expanding a part of the data block ~~at the former stage~~ that is stored in said memory means and multiplying the expanded data by a predetermined window to ~~output~~ generate a second ~~processed~~ process result; and

addition means for adding the first and second ~~processed results~~ output process results generated by said multiplication means.

11. (Canceled)

12. (Currently Amended) The filtering apparatus according to claim 10, wherein said multiplication means switches the processing method by switching the predetermined window by which each data block is ~~multiplied~~ multiplied, on the basis of the side information including the information regarding decoding the data block.

13. (Currently Amended) The filtering apparatus according to claim 9, wherein said transformation means ~~acquires~~ generates the output data stream by ~~making the matrixing~~ matrix transformation on each data block of the input data stream in accordance with the following expression,

$$y = C_N^{IV} x$$

where x is a column vector of one data block contained in the input data stream, y is a column vector of output data block corresponding to x , and C_N^{IV} is a DCT-IV transformation matrix represented by the following expression,

$$[C_N^{IV}]_{m,n} = \cos \left[\frac{\left(m + \frac{1}{2}\right) \left(n + \frac{1}{2}\right) \pi}{N} \right], 0 \leq m, n \leq N - 1$$

where N is the number of data contained in x .

14-16. (Canceled)